

## The Flow of Electrons and the Flow of Work – A Parallel

There is an interesting parallel between the properties of electron flow and the nature of work flow in organizations. In electron flow, the influencing factors are resistance to that flow (measured in ohms  $\Omega$ ), the amount of flow or electric current (measured in coulombs C ( $C = 6.241506 \times 10^{18}$  electrons)), the time of flow (e.g. measured in seconds s, which when multiplied by coulombs gives amperes A), the storage capacity of electric charge or capacitance (measured in farads F or C/V (when the potential difference of 1 volt (V) passed across a capacitor (the storage device) will charge that storage device with 1 coulomb C of electricity (electric current))), and the force of flow (measured in volts V ( $V = 1\Omega \times 1A$ )). So we have the following components of electron flow: resistance, amount, time, storage capacity, and force. A striking parallel exists in the world of work, especially in large organizational structures.

To emphasize this parallel, let us use the varying entities of a) a large, bureaucratic corporation, b) a large but much more flexible company, c) a stagnant, mid-size firm, d) a growing, mid-size company, e) a small start-up business, and f) a self-employed entrepreneur with no staff. Here is a table of the relationships of the flow of work in each of these entities:

Entity Type:	A	B	C	D	E	F
Resistance	VERY HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW
Amount	HIGH	HIGH	MEDIUM	MEDIUM	LOW	LOW
Time	HIGH	MEDIUM	HIGH	MEDIUM	LOW	LOW
Storage Capacity	HIGH	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
Force	LOW	MEDIUM	LOW	MEDIUM	HIGH	VERY HIGH

It is interesting to consider the equivalent entities in the electronics world as based on the above matrix and then note the similarities in the properties of those entities. For instance...

In the world of physics, electron flow involves one of the four forces in the universe, namely, EMF (electromagnetic force). Also in physics is the general theory of relativity regarding the relativity of time as a 4<sup>th</sup> dimension in a 4-dimensional spacetime universe, time being relative to the observer. Likewise, in organizational work flow, results (e.g. profit) is relative to the observer, inasmuch as how it compares with other like firms (its position from the standpoint of the observer, if you will). Therefore, just as in physics where time is relative in its perception by the observer, the financial health of a company is relative in its perception by the observer (e.g. a Wall Street stock analyst). If a company is in any industry that produces meager profits, any substantial rate of return would be deemed as noteworthy. Or if the expectation of profit is not met, it is penalized in stock value. There is an interesting parallel in quantum mechanics, at least in this negative, punitive side of stock valuation scenarios.

At the subatomic or quantum level, particles (e.g. photons or particles of light) behave in a probabilistic manner. While such particles are corpuscular in nature, the pattern that develops from their probabilities (of existence or non-existence) form a wave which is measurable (e.g. by its wavelength), thus the duality of light's properties (particle and wave). The farther away that the particle would be positioned from its expected wave pattern, the lower the probability of its existence (acceptance in reality, if you will). Similarly, the farther away that the profit margin of a corporation is positioned from its expected target (e.g. in a season-adjusted, industry-specific financial wave pattern, if you will), the lower the probability of its acceptance in the mind of the stock analyst. Furthermore, just as such a "wandering" particle would have less chance of seeing the "light of day," so likewise a favorable stock value target would have less chance of seeing the light of day in a stock analyst's report.